

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re **PATENT** application of:

Applicant: Haruo WAKAYAMA

Serial No.: 10/533,650 Art Unit: 3724

Filed: May 5, 2005

Title: **SCRIBE LINE FORMING DEVICE AND SCRIBE LINE FORMING METHOD**

Examiner: Sean M. Michalski

Docket No.: YAMAP0979US

REPLY BRIEF TO THE EXAMINER'S ANSWER

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Sir:

This Reply Brief is submitted in connection with the appeal of the above-identified application. If there are any additional fees resulting from this communication, please charge the same to our Deposit Account No. 18-0988, our Docket No. YAMAP0979US.

REPLY

The claimed invention is a scribe line forming apparatus and related method. Aspects of the invention, as recited in claim 1 for example, include a vertical crack forming member, an impact force applying means, and heating and cooling means. The vertical crack forming member has a blade that forms a vertical crack to be an origination point of a scribe line by pressing the blade against the surface of a brittle substrate. The impact force applying means applies an abrupt impact force to the vertical crack forming member to generate the vertical crack. The scribe line is formed originating from this initial crack as a result of stresses generated by a temperature gradient created by the heating and cooling means. Comparable features are recited in independent method claim 14.

The primary issue remains the interpretation of what constitutes an “abrupt impact”. The Examiner has relied upon an online dictionary definition of “impact” as: “Contact or impression by touch; collision; forcible contact; force communicated.” The Examiner apparently recognizes that only the last concept, “force communicated,” can be considered consistent with the rejections. In selecting such particular definition from among many, in the abstract and out of context of the specification, the Examiner has misinterpreted the claim term “abrupt impact.”

A. *The Examiner Violates Settled Principles of Claim Construction*

The Examiner essentially has “dictionary shopped”. In other words, the Examiner has selected an online dictionary definition of “impact” to suit the rejections, rather than interpreting the claim term in view of its use in the specification. The Examiner’s interpretation of “impact” violates well settled principles of claim interpretation, particularly regarding the application of dictionary definitions.

The Federal Circuit set forth specific principles regarding the use of dictionary definitions in its *en banc* decision in *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005). The Federal Circuit cautioned that dictionaries are not to be consulted in the

abstract. Rather, the "ordinary meaning" of a claim term is the meaning to one skilled in art in the particular context of the specification. *Id.* at 1321. The Federal Circuit further noted that dictionaries, by their very nature, strive to collect all uses of words and in a variety of contexts. Given multiple definitions, a dictionary should not be used to expand the scope of a claim term beyond its usage in the specification. *Id.* at 1321-22.

Subsequent to *Phillips*, the Federal Circuit has continued to emphasize that dictionary definitions are not to be applied in the abstract, but rather should be applied in view of the context in which a claim term is used in the specification. Application of a dictionary definition must be in accordance with the intrinsic materials: the claims themselves and the specification. *Free Motion Fitness, Inc. v. Cybex International, Inc.*, 423 F.3d 1343, 1348 (Fed. Cir. 2005). It is improper to read a claim term to encompass a broader definition than its usage in the specification merely because a broader definition may be found in a dictionary, treatise, or similar source. *Kinetic Concepts, Inc. v. Blue Sky Medical Group, Inc.*, 554 F.3d 1010, 1019 (Fed. Cir. 2009); *Nystrom v. Trex Company, Inc.*, 424 F.3d 1136, 1145 (Fed. Cir. 2005). Affording a claim term its "ordinary meaning" does not mean applying the broadest dictionary definition or the aggregate of multiple dictionary definitions. Rather, in the case of multiple dictionary definitions, the specification should be considered to determine the most appropriate definition in context. *Free Motion*, 423 F.3d at 1348-49.

In the Appeal Brief (and elsewhere during prosecution), Applicant proffered a dictionary definition of "impact" as the striking of one body against another, and "abrupt" as sudden or quick. As indicated in the specification, the "abrupt impact" is an impact against the vertical crack forming member at the origination of the scribe line to prevent unwanted cracking, particularly at the edge of the substrate. (See, e.g., Application at page 15, lines 3-19.) For example, the structure of the impact force applying means may include a spring that applies a downward force to an armature 6. A solenoid coil 6a generates a lifting electromagnetic force to counteract the spring force. When a voltage applied to the solenoid coil is removed, the electromagnetic force ceases. As a

result, the spring force causes an abrupt impact that drives the vertical crack forming member against the substrate to generate the vertical crack at the origination of the scribe line. (See Application at page 9, line 20 to page 10, line 10; page 15, lines 3-19; Figs. 3(a) and 3(b).) As such, the specification is consistent with Applicant's proffered interpretation of "abrupt impact" as a sudden or quick striking of a body against the vertical crack forming member to form the initial vertical crack from which the scribe line originates.

In contrast, the Examiner's proffered definition of "impact" as a "force communicated" bears no relation to its usage in the specification. In the abstract, of course, the term "impact" may have many meanings. The meaning selected by the Examiner, however, is tantamount to a mere effect. For example, a force communicated by one object may have "an impact", i.e., an effect, on another object. In selecting this specific portion of the online dictionary definition of impact, the Examiner has ignored the physical nature of the impact against the vertical crack forming member as described in the specification. In other words, the manner in which the Examiner has applied the term "impact" is so broad that it would seem always to encompass an "abrupt impact," which certainly is not how the term is used in the specification. Furthermore, in Applicant's Appeal Brief there also is specifically set forth a definition of "abrupt" as meaning sudden or quick. The Examiner has seemed utterly to ignore the abrupt aspect of the claimed impact. Accordingly, the Examiner's selected definition of impact as merely a "force communicated" is not reasonable when considered in light of the specification.

The claimed invention includes an impact force applying means for applying an abrupt impact to the vertical crack forming member to generate the vertical crack at the origination of the scribe line. As used in the specification, an "abrupt impact" is properly interpreted as a sudden or quick striking against the vertical crack forming member to form the vertical crack. Once the term "abrupt impact" is properly construed, it follows that the references, whether considered individually or in combination, do not disclose

or suggest the claimed invention.

B. Rejections Based On Hoekstra and Ishikawa

Claims 1, 5, and 14-16 stand rejected pursuant to 35 U.S.C. § 103(a) as being obvious over Hoekstra et al. U.S. Patent No. 6,489,588 (Hoekstra) in view of Ishikawa et al., U.S. Patent No. 6,536,121 (Ishikawa). The Examiner cites to Ishikawa as disclosing the claimed impact force applying means. Ishikawa, however, does not disclose any structure that applies an abrupt impact, i.e., a sudden or quick striking, against a vertical crack forming member.

As explained in the Appeal Brief, Ishikawa discloses a purported improvement to a scribing apparatus that uses a vibrating cutting blade. During scribing with a vibrating scribing device, **the cutter should never leave contact with the substrate**. As Ishikawa itself states:

The scribing apparatus has a vibration generation member generating a vibration in a scribe body, and the scribing apparatus vibrates the cutter disposed on a lower end of the scribe body. When the cutter stays in contact with the work surface, the scribe body vibrates **without changing a position of the cutter**. Therefore, a pressure applied to the work by the cutter vibrates periodically, and a deep vertical cracks [sic] is generated on the work surface in a work thickness direction.

(Col. 1, lines 10-18, emphasis added.) Indeed, the purpose of the purported improvement of Ishikawa is to prevent the cutter from losing contact with the substrate as a result of the vibrations. Thus, in a vibration scribe, the vibrations alter the **force** of the cutter, not its **position**.

In this vein, Ishikawa discloses a way to reduce the dynamic load on the cutter using an attenuation force of a magnet. Such force attenuation actually precludes application of an abrupt impact to the cutter. (See col. 12, lines 18-22.) Contrary to the Examiner's assertion, therefore, each vibration cycle does not generate an "abrupt impact" on a vertical crack forming member as claimed.

In the Advisory Action, and again in the Examiner's Answer, the Examiner takes the position that an "abrupt impact" relates to force, not necessarily to contact, and therefore does not require a positional change. In view of the settled case law cited above, the Examiner's proffered definition of "abrupt impact" runs contrary to the usage of the term in the specification, and thus is improper. The Examiner, therefore, is not applying a "reasonable" interpretation when he concludes that the cutter of Ishikawa may generate an "abrupt" impact without any corresponding change of position. In this vein, the claim recites that the impact force applying means is positioned to apply the abrupt impact to the vertical crack forming member, not the substrate. Ishikawa does not disclose any comparably configured structures.

In addition, one skilled in the art would not combine the disclosures of Hoekstra and Ishikawa. Because Ishikawa does not address specific issues associated with scribe line initiation, Ishikawa cannot be the basis for modifying Hoekstra to provide an abrupt impact to initiate the crack. Hoekstra and the claimed invention relate to the use of heating and cooling beams to create stresses to form the scribe line. The claimed invention improves upon this type of scribing by providing a more effective manner of initiating the scribe line: employing an impact force applying means to apply an abrupt impact against a vertical crack forming member. Ishikawa does not address the issue of crack initiation at all. One skilled in the art, therefore, would not read Ishikawa as suggesting a manner of crack initiation for use in a heating/cooling scribing device such as that disclosed in Hoekstra.

For the foregoing reasons, a combination of Ishikawa and Hoekstra does not result in, disclose, or suggest at least the claimed impact force apply means. Accordingly, claims 1, 5, and 14-16, are not obvious over Hoekstra in view of Ishikawa, and the rejections should be withdrawn.

C. Rejections Based On Hoekstra and Insolio

Claims 1, 5, and 14-16 also stand rejected pursuant to 35 U.S.C. § 103(a) as

being obvious over Hoekstra in view of Insolio, U.S. Patent No. 3,276,302 (Insolio). Similar to the above, the Examiner recognizes that Hoekstra does not disclose the impact force applying means, but concludes that Insolio does so. Appellant traverses the rejections because Insolio (like Ishikawa) does not disclose or suggest the claimed impact force applying means.

The Examiner characterizes the device of Insolio as a solenoid actuated cutting device, wherein the solenoid controls the pressure or force applied by the cutter. Springs 162 bias the carriage 130 (with the cutter) away from the engaged position. In operation, the solenoid and springs control the positioning of the cutter to place it gently adjacent the substrate, at which time a full cutting voltage may be instantly applied. (See, e.g., col. 3, lines 1-7; Figs. 7-9.)

The Examiner has interpreted the instant application of the full cutting voltage as an “abrupt impact” in that an electrical force is a “force communicated” to the cutter based on the Examiner’s selected definition of impact from the online dictionary. As demonstrated above, the Examiner’s selected definition is contrary to the usage of the term impact in the specification. Similar to the above with respect to Ishikawa, the Examiner provides no basis for his interpretation, which is contrary to the plain meaning of “impact”, set forth above, as the striking of one body against another.

In addition, as explained in the Appeal Brief, the portion of Insolio being relied upon by the Examiner is concerned with an issue that the cutter and/or glass may be damaged either when the cutter first impacts the glass, or if the cutter contacts the glass prematurely while the solenoid is still extending the cutter to the full cutting depth. (See col. 14, lines 30-40.) To address these issues, carriage wheels 136 aid in positioning the cutter out in front of the edge of the glass. (See, e.g., Fig. 8.) A low voltage is applied to the solenoid to slowly extend the cutter into position, which reduces the likelihood of impact damage. Once in position, the full voltage is immediately applied. (Col. 16, lines 35-46.) In other words, Insolio *teaches away* from

providing an abrupt impact to initiate the cutting process by increasing the voltage to the full cutting voltage in a stepwise fashion.

Furthermore, the Examiner's purported "impact" of Insolio is the increase to the cutting voltage. Once the cutting voltage is achieved, it is maintained to perform the cutting operation. As such, even if rising to the cutting voltage somehow constitutes an impact, the purported impact is not **abrupt** as claimed, insofar as the cutting voltage in Insolio is maintained to perform the cutting operation.

In addition, the claims recite that the abrupt impact is applied to the vertical crack forming member so as to initiate the scribe line. In Insolio, nothing strikes the cutter to initiate the scribe line, which differs from the claimed invention in which the impact force applying means applies an abrupt impact to the vertical crack forming member. Once more, the Examiner's interpretation of abrupt impact as merely a "force communicated" simply is not reasonable in view of the specification.

For the foregoing reasons, a combination of Insolio and Hoekstra does not result in, disclose, or suggest the claimed impact force apply means. Accordingly, claims 1, 5, and 14-16, are not obvious over Hoekstra in view of Insolio, and the rejections should be withdrawn.

D. Conclusion

For at least these reasons, claims 1, 5, and 14-16 are not obvious over Hoekstra in view of Ishikawa. The claims also are not obvious over Hoekstra in view of Insolio. Accordingly, Appellant respectfully requests reversal of the Examiner's rejections of claims 1, 5, and 14-16.

Respectfully submitted,

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